What is claimed is;

1. A dielectric resonator characterized in that three resonant modes of a dielectric block of a generally rectangular parallelopiped are coupled by chamfering a ridge portion of said dielectric block and chamfering another ridge portion which is not parallel to said ridge portion at the same time.

2. A dielectric filter characterized in disposing at least one dielectric resonator claimed in claim 1 in a cut-off waveguide.

3. A dielectric filter claimed in claim 2 characterized in disposing two or more of said dielectric resonators in said and providing means for partition consisting of a conductive material between said dielectric resonators.

4. A dielectric filter claimed in claim 2 or 3 characterized in disposing a metal rod contacting with said cut-off waveguide by one end in parallel with a side surface of said dielectric resonator in the position distant a predetermined amount from said side surface and having a composition in which resonant frequency of each resonance and an amount of coupling between resonators is adjustable

5. A dielectric filter claimed in claim 2 through 4 characterized in installing other resonator further than dielectric resonator clamed in claim 1 in said cut-off waveguide.

6. A dielectric resonator characterized in comprising a

dielectric block in the form of a generally rectangular parallelopiped having three-ridge portions chamfered thereof and generating TE01 δ mode on electro-magnetically independent three surfaces of said dielectric block.

7. A dielectric resonator claimed in claim 6 characterized in that said dielectric block is mounted in a cut-off waveguide of a generally rectangular parallelopiped.

8. A dielectric resonator claimed in claim 6 or 7 characterized in having three surfaces of A1, A2, A3 (hereafter called surfaces A) formed by chamfering three ridge portions sharing a point of said dielectric block and three surfaces of B1, B2, B3 (hereafter called surfaces B) adjacent to each of the surfaces A respectively, in which an angle between 40 degrees and 50 degrees, both inclusive, is offered by said surfaces A and said surfaces B and an area ratio of said surfaces A with respect to said surfaces B stands between 1% and 200%, both inclusive.

9. A dielectric resonator claimed in claim 6 or 7 characterized in having three surfaces A formed by chamfering three ridge portions sharing an apex of said dielectric block, another three surfaces of A'4, A'5, A'6 (hereafter called surfaces A') formed by chamfering three ridge portions sharing another apex on a diagonal line of said apex, another three surfaces of B'1, B'2, B'3 (hereafter called surfaces B') adjacent to each of surfaces A and surfaces A' respectively and still another three surfaces of C'1 C'2 C'3 (hereafter called surfaces C') adjacent to each of surfaces A and surfaces A' respectively, wherein an

angle of 40 degrees through 50 degrees is offered by the surfaces A and B' or by the surfaces A' and C' and an area ratio of said surfaces A with respect to said surfaces B' or an area ratio of said surfaces A' with respect to said surfaces C' stand between 1% and 200%, both inclusive, respectively.

10. A dielectric filter using the dielectric resonator claimed in claim 8 or 9 characterized in that an angle between 40 degrees and 50 degrees, both inclusive, is offered by said three surfaces A or A' formed by chamfering three ridge portions sharing an apex of said dielectric block and other three surfaces B or B' adjacent thereto respectively and the surfaces A or A' and surfaces B or B' adjacent thereto respectively have three opposing surfaces of C1, C2, C3 (hereafter called surfaces C) or the surfaces C' and characterized in providing a feeding probe near the surfaces B and B', the surfaces B' and B', the surfaces C and C', or the surfaces C' and C'

11. A dielectric filter using the dielectric resonator claimed in claim 8 characterized in having said three surfaces A formed by chamfering three ridge portion sharing an apex of said dielectric block, another three surfaces B adjacent to said three surfaces A offering an angle between 40 degrees and 50 degrees, both inclusive, and three surfaces C opposing to said three surfaces B respectively, wherein a feeding probe is provided on the surfaces B and surfaces C.

12. A dielectric filter using the dielectric resonator claimed in claim 8 characterized in that an angle offered by a direction p

and p' of the feeding probe with respect to the x, y, z axes of said dielectric resonator are variable within the range between –45 degrees and +45 degrees, both inclusive, while in use.

13. A dielectric filter claimed in claim 11 characterized in that frequency and attenuation generating the attenuation pole at lower side band can be varied by varying a position for providing a feeding probe on said surfaces B and a position for providing a feeding probe on said surfaces C.

14. A dielectric filter claimed in claim 10 through 13 characterized in that said feeding probe is rod-type.

15. A dielectric filter claimed in claim 10 through 13 characterized in that said feeding probe is loop-type.

16. A dielectric filter using the dielectric resonator claimed in claim 7 through 9 characterized in mounting at least two or more of said dielectric resonators in said cut-off waveguide of a generally rectangular parallelopiped.